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Branchiostegal rays six.

Mouth with its cleft scarcely oblique, quite deep, the supramaxillars extending behind the eyes, expanded towards their ends, especially at the upper angle. Teeth small, stout and rather blunt, in a band on each jaw, interrupted at the symphysis and narrowed on the sides behind. Vomer and front of palatines with similar teeth.

Dorsal fin rather low, and nearly even, with its origin behind the vertical of the pectorals, and almost connected to the base of the caudal behind.

Anal fin much shorter, but similar in form to the dorsal, and partly connected behind to the caudal.

Pectoral fins moderate, obliquely and convex nearer the lower rays, in an adipose skin.

Ventral filaments inserted under the preoperculum, compressed, closely annular, but not articulated like the rays of Phycis, &c.

The branchial arches have transverse scabrous ridges on each side of their concave surfaces, except the middle portion of the first below the bend, where the ridges of the outer side are replaced on the margin by about three produced, scabrous, subcylindrical processes. The cleft behind the fourth arch is moderate. There are no pseudo-branchiæ.

The stomach is large and sacciform, and, at the pyloric extremity, there are two short cæca, one on each side.

This genus is most nearly allied to *Dinematichthys* of Bleeker, but distinguished by the scaleless head, dentition and the absence of claspers to the anal papilla, &c.

BROSMOPHYCIS MARGINATUS Gill.

Synonymy.

Brosmius marginatus *Ayres*, Proc. California Academy of Natural Sciences, vol. i. p. 13, 1854.

Brosmius marginatus *Girard*, Explorations and Surveys for a Railroad Route, &c., vol. x. *Fishes*, p. 141.

Brosmophycis marginatus *Gill*, Proc. Academy of Natural Sciences of Phila.; vol. xiii. p. 168, 1861.

Halias marginatus *Ayres*, Proc. California Academy of Natural Sciences, part 2, p. 52, 1861.

Brosmophycis marginatus *Gill*, Proc. Academy of Natural Sciences of Phila., 1862, p. 280.

Dinematichthys marginatus *Günther*, Catalogue of the Fishes in the British Museum, vol. iv. p. 375.

Hab.—California.

Synopsis of the Family of LYCODOIDÆ.

BY THEODORE GILL.

In the present article, it is desired to draw the attention of American marine zoologists to the species of this family, to call forth the search for any species of two of the genera hitherto only known from Greenland, or high northern seas; and also to embody the views regarding the affinities of the several genera, which have been widely scattered in the different ichthyological systems, and yet which appear to be connected by the closest ties.

Only the different species of *Enchelyopus* and *Gymnelis* are known to the author; acquaintance with *Lycodes* being confined to the descriptions and excellent figures of Reinhardt, Kroyer and Richardson.

Family *LYCODOIDÆ* (Günther).

Synonymy.

Zoarchidæ *Swainson*, Natural History and Classification of Fishes, Amphibians and Reptiles, vol. ii. pp. 184, 283, 1839.

Lycodidæ *Günther*, Catalogue of the Fishes in the British Museum, vol. iv. pp. 317, 319, 1862.
Gadidæ and Ophidini pt. *Reinhardt.*
Blennioidei and Ophidoidei pt. *Bleeker.*
Blennioidæ pt. *Gill, Kroyer.*
Lycodidæ and Blenniidæ *Günther.*

Teleocephali with an elongated subanguilliform body, with the soft-rayed dorsal and anal fins confluent with the pointed caudal, invested like the body in a loose skin ; the anus submedian or anterior, and with a raised margin ; branchial apertures more or less restricted to the sides ; minute jugular or obsolete ventral fins, and typically two rudimentary pyloric cæca.

This diagnosis is believed to embody the peculiar external characters which mark the group as a family, and all the types here included in it are evidently closely related. Reinhardt, who first made known two of the genera,—*Lycodes* and *Gymnelis*,—widely scattered them, referring the former to the Gobiidæ next to "*Zoarcæus*," between which and *Anarrhicas* it was said to be intermediate, while *Gymnelis* was placed in the family Ophidiini. Richardson, with his usual cautiousness in differing from others, followed Reinhardt, but expressed his opinion concerning the close affinity between *Lycodes* and *Gymnelis*. Kroyer approximated the three genera, referring them to the Blenniidæ next to *Clinus*.

Swainson, in 1839, proposed a family—"Zoarchidæ"—for fishes of the first order—Acanthopteryges,—having the body "anguilliform ; dorsal, caudal and anal fins united ; the rays soft." To the family so vaguely defined were referred the genera *Zoarces* and *Anarrhicas*. *Zoarces* has essentially the characters mentioned ; but, as *Anarhicas* cannot be truly said to be either "anguilliform," or have the "dorsal, caudal and anal fins united," or "the rays soft,"—if by the latter term is meant articulated or branched,—it is not quite evident why the genus should have been placed in the family.

Günther has referred *Zoarces* to the Blenniidæ, although it has neither the spinous portion as much developed as the soft, or the whole fin composed of spines, nor is it destitute of pyloric appendages,* as required by his diagnosis of the family. On the other hand, the same gentleman has proposed a family Lycodidæ for *Lycodes* (including *Lycodes*, *Phycocœtes* and *Ilyocœtes*),—*Gymnelis* and a new genus founded on a poor description of a species, called *Ophidium Parrii* by Ross. The family thus composed is said to bear "a strong resemblance to some of the Blennoid fishes, yet several of them show pyloric appendages ; they have neither spines in the fins, nor a prominent anal papilla." In all such differential characters, *Zoarces*† agrees with the true Lycodidæ. But, while *Zoarces* is approximated to *Lycodes* and *Gymnelis*, it appears to be somewhat doubtful whether *Ilyocœtes* and *Phycocœtes* of Jenyns, as well as Günther's *Uronectes*, belong to the same family with them, notwithstanding the reference of the first two genera to the genus *Lycodes* itself.

The reviewer has heretofore suggested that "*Zoarces* and *Lycodes* form a peculiar family,"‡ but had previously, in the "Catalogue of the Fishes of the Eastern Coast," followed Reinhardt and Richardson in retaining them in the family of Blennioids. *Gymnelis*, which should have been approximated to them, was inadvertently omitted.

The following synopsis shows the distinctive characters of the several groups and genera :

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* Gunther, it is true, also refuses pyloric appendages in the diagnosis of *Zoarces* itself; but on examination of the European as well as American species, I find two developed, as in *Lycodes* and *Gymnelis*, in which he admits their presence.

† The posterior short spines or atrophied rays of the dorsal fin are not truly analogous to the spines of the dorsal fin, as is evident from their position.

‡ Gill, Proc. Academy of Natural Sciences of Phila., 1862, p. 501.

I. Ventral fins present in a rudimentary condition; pectoral with the axilla much nearer the back than the breast.
  α. Dorsal fin interrupted behind, and with its rays replaced by short spines.. ZOARCEINÆ.
Zoarces.
  β. Dorsal fin continuous.. LYCODINÆ.
Lycodes.
II. Ventral fins obsolete ; pectoral with its axil nearer the breast than the back.. GYMNELINÆ
Gymnelis.

Subfamily ZOARCEINÆ Gill.

Synonymy.

Zoarceinæ *Gill*, Catalogue of the Fishes of the Eastern Coast of North America, &c., p. 45, 1860.
Anarrhicinæ pt. *Bon.*
Anarrhichadinæ pt. *Bon.*
Anarrhichæformes pt. *Blkr.*

Genus ENCHELYOPUS Gronovius.

Synonymy.

Enchelyopus *Klein*, Historiæ Piscium Naturalis promovendæ Missus quartus, p. 51, 1744.
Enchelyopus *Gronovius*, Zoophylaciæ Gronoviani fasciculus primus, p. 77, 1763.
Les Zoarcus *Cuvier*, Regne Animal, ed. 2, tome ii. p. 240, 1829.
Zoarcus *McMurtrie*, The Animal Kingdom of Cuvier, vol. ii. p. 176, 1831.
Zoarcæus *Epstrom.*
Zoarceus *Reinhardt*, Wiegmann's Archiv. für Naturgeschichte, 1837, b. i. p. 235.
Zoarchus *Swainson*, Natural History of Fishes, Amphibians and Reptiles, vol. ii. p. 283, 1839.
Blennius sp. *Linn.* et Linnæani.

Body elongated, subcylindrical anteriorly, compressed towards the tail, into which it gradually tapers. *Anus* in the second third of the length, with a moderately elevated periphery.

Scales minute, imbedded in the skin.

Head oblong, moderate and decurved in front to the snout. *Eyes* moderate, entirely in the anterior half of the head. *Nostrils* simple.

Mouth with the cleft little oblique and more or less deep ; the supramaxillars extending mostly under or behind the eyes. *Jaws* nearly even.

Teeth subcylindrical and conic, pauciserial on the jaws. Palate smooth.

Branchial apertures rather large, oblique and extending forwards and downwards ; separated by an isthmus little wider than the distance between the ventrals.

Branchiostegal rays six.

Dorsal fin commencing nearly above the pectoral fins, interrupted near its end for a short interval, where the rays are atrophied and replaced by very short, pungent spines ; the short portion behind, as well as the anal, confluent with the caudal.

Pectoral fins moderate, inserted moderately high on the humeral arch. rounded behind.

Ventral fins moderately approximated, in advance of the pectorals, provided with three or four branched rays.

The type of this genus was placed among the *Blennii* by Artedi and Linnæus, and the naturalists of the true Linnæan school, as late as the early years of the present century, although it was considered as the type of a peculiar genus by Gronovius as early as the year 1763. That erudite and sagacious ichthyologist accepted for it a name given by Klein to a heterogenous group, of which the species in question was one. It is therefore expedient to examine the group of Klein, more especially as his name has been employed for widely distinct genera.

It was in his fourth "Missus," and in the year 1744, that Klein introduced into the literature of the science the name *Enchelyopus*. He bestowed this name (ἐγχλευωπῶν) on fishes which he supposed to be analagous to, or "collateral" with, the true eels, but distinguished by their open or ample branchial apertures. To them were likewise attributed oblong, smooth opercula, of the consistency of more or less tough parchment, and readily compressible, and more or less elongated and cylindrical bodies. The species were distributed among two divisions,—those with an elongated dorsal, and those with a short one. The character of the genus *Enchelyopus* may be best learned by a knowledge of its contents. Those indicated by an asterisk (*) after the number of the species, are figured in Klein's work.

I. ENCHELYOPUS *pinna dorsali longa.*

1.*Lepturus argenteus *Gill* ex *Shaw.*
2. Lepturus haumela *Gill* ex Forsk.
3. Lepturus.
4. Ophidion barbatum *L.*
5. Ammodytes tobianus *L.*
6.*Hyperoplus lanceolatus *Gill* ex *Les.*
7. Trachypterus iris *C.* et *V.*
8. Trachypterus tænia.
9. Trachypterus tænia *Bl.*, *Schn.*
10. Cepola rubescens *L.*
11.*Enchelyopus viviparus *Gronov.*
12.*Lota vulgaris *Cuv.*
13. " "
14. Molva vulgaris *Flem.*
15. Mastacembelus.
16. Rhynchobdella aculeata *Gthr.* ex *Bloch.*
17. Gempylus serpens *Cuv.*

II. ENCHELYOPUS *pinna dorsali brevi.*

1. Misgurnus fossilis *Lac.*
2.* " "
3.*Nemachilus barbatula *Blkr.*
4. Cobitis tænia *L.*
5.*Gobio fluviatilis *Aq.*

It is not necessary to remind the ichthyologist who analyzes this genus of Klein, that it would be almost impossible to combine together as many species which should offer more numerous points of difference than the fishes thus associated. Representatives of eleven families,* most of which have little affinity to each, are thrown together in one heterogenous mass; nor is the group confined even within the limits of the vague diagnosis, for, although none of its members have the branchial aperture as restricted as the eels, still there is quite a wide difference in their extent between some of the species, such as the Cobitoidæ contrasted with the Lepturoids. Although it may not be allowable to criticize the fathers of science as if they had enjoyed the benefits of that knowledge which is the slow result of a century of labor, it will not be denied that Cuvier and Valenciennes were right in utterly denying to Klein the genius of a naturalist. Happy had it been for Icthyology—more happy still for Conchology,—had he never lived!

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* Lepturoidæ (1, 2, 3.) Ophidioidæ (4.) Ammodytoidæ (5, 6.) *Trachypteroidæ* (7, 8, 9.) *Cepoloidæ* (10.) *Lycodoidæ* (11.) Gadoidæ (12, 13, 14.) Mastacembeloidæ (15, 16.) Scombroidæ (17). Cobitoidæ § II. 1, 2, 3, 4). Cyprinoidæ (5).

The name of Klein was revived in 1763 by Gronovius, and by him applied to a restricted group, composed of the twelfth species of Klein, and one which was for the first time made known. He restricted the genus with much precision, but did not include the posterior depression of the dorsal fin among the generic characters, mentioning that peculiarity of his first species as one of the specific distinctions. His second and only other species had an entire dorsal fin, the branchial apertures very ample, the ventral fins two-rayed, teeth equal, acute, remote, biserial at the front of the lower jaw, elsewhere uniserial ("solitarii"), D. 80. A. 60. P. 16. V. 2; it was said to inhabit the American sea. This is probably a Brotuloid related to *Brotula*, and has not been re-discovered.

As Klein specified no type for his genus *Enchelyopus*, and as his diagnosis agrees as well with *Zoarces* as any other type noticed or figured, and, finally, as he did not, more than the other zoologists of his time, regard the first species enumerated under his genera as types, Gronovius was justified in retaining *Enchelyopus* for the genus in question, since its first species was included by Klein in his own. The name of Klein and Gronovius must therefore, I think, be retained in place of *Zoarces*.

Klein's name was afterwards used by Schneider or Bloch and others, for different dismemberments of his genus; but, as all had been anticipated by Gronovius in its application, it cannot affect the question; and the objection made by Valenciennes to its employment for the genus called by him, after Cuvier, *Zoarces*, is therefore illogical.

Cuvier, in the second edition of his Regne Animal, first established with exactness and characterized by the depression of the dorsal fin, the genus in question, and gave to it in its French form, (Les Zoarces,) the name which it has since, with more or less modification, borne. But, as the genus had already received a name, that of the great naturalist cannot be retained.

The choice assortment of modifications of the word *Zoarces* is doubtless due to the detestable plan adopted by Cuvier, in common with the other French zoologists of former years and still continued by a few, of giving only the French form of the name, instead of that belonging to the language of science. Naturalists will be precluded from adopting many genera first indicated by Cuvier on account of the preference thus evinced for giving them in the vernacular, for it is not the business of the savant to translate the popular, or even the pseudo-popular name which the author of any country chooses to employ, into its scientific equivalent. In the present case, however, the true form of the name happens to be the same as the French, as its etymology, (ζώαρκής,) indicates, and is preferable to those terminating in -us.

The genus *Enchelyopus*, as here adopted, has the same limits as the Cuvierian *Zoarces*, but it is probable that two distinct genera are confounded under it,—the American species being distinguished from the European by the larger head, much larger mouth, greater extent of the spinous portion of the dorsal fin, and the much larger number of caudal vertebræ. The name *Macrozoarces*, here used in a subgeneric sense, will doubtless have to be elevated to a generic one, and the American species named *M. labrosus*.

Subgenus MACROZOARCES Gill.

ENCHELYOPUS ANGUILLARIS Gill.

Synonymy.

Blennius anguillaris *Peck*, Memoirs of the American Academy of Arts and Sciences, vol. ii, pt. 2, p. 48, fig. 3.

Blennius labrosus *Mitchell*, Transactions of the Literary and Philosophical Society of New York, vol. i. p. 375, pl. 1, fig. 7.

Blennius ciliatus *Mitchell*, op. cit., p. 374, pl. 1, fig. 6.
Zoarces labrosus *Cuvier*, Regne Animal, t. ii.
Zoarces labrosus *Cuv. et Val.*, Histoire Naturelle des Poissons, t. xi. p. 466, pl. 342.
Zoarces fimbriatus *Cuv. et Val.*, op. cit., t. xi. p. 468.
Zoarces anguillaris *Storer*, Report on the Fishes of Massachusetts, p. 66, 1839.
Zoarces anguillaris *Dekay*, Natural History of New York; *Fishes*, p. 155, pl. 16, fig. 45.
Zoarces fimbriatus *Dekay*, op. cit., p. 156, pl. 16, fig. 44.
Zoarces anguillaris *Storer*, Synopsis of the Fishes of North America, p. 123; ib. in Memoirs of the American Academy of Arts and Sciences, vol. ii. p. 375, 1846.
Zoarces fimbriatus *Storer*, op. cit., p. 123.
Zoarces labrosus *Cuv.*, Regne Animal, (ed. ill,) *Poissons*, pl. 79, fig. 1.
Zoarces anguillaris *Storer*, Memoirs of the American Academy of Arts and Sciences, vol. ii.
Zoarces anguillaris *Gill*, Catalogue of the Fishes of North America, p. 45, 1860.
Zoarces ciliatus *Gill*, op. cit.
Zoarces anguillaris *Günther*, Catalogue of the Fishes in the British Museum, vol. iv. p. 296.

Hab.—New York and New England coast.

The "*Zoarces anguillaris*," when allowed to remain some time in weak liquor, apparently represents the state called "*Z. fimbriatus.*" Such change was apparent after a few weeks in a large specimen, received through the kindness of Mr. J. C. Brevoort, of Brooklyn.

Subfamily *LYCODINÆ* Gill.

Genus LYCODES Reinhardt.

Synonymy.

Lycodes *Reinhardt*, Kongelige Danske Videnskabernes Selskabs Naturvidenskabelige og Mathematiske Afhandlingar, deel vii. p. 153, 1838.
Lycodes *Günther*, Catalogue of the Fishes in the British Museum, vol. iv. p. 319, 1862.
Blennius sp. *Sabine*,
Zoarces sp. *Richardson.*

Body elongated, subcylindrical anteriorly, compressed towards the tail and gradually tapering. Anus subcentral, with a tumid border and a small papilla behind.

Scales minute or obsolete.

Head oblong, moderate, decurved in front to the snout. Eyes moderate, mostly or entirely in the anterior half of the head. Nostrils near the snout and above the maxillars; the anterior simple; the posterior tubular.

Mouth with the cleft scarcely oblique, little extending backwards, the supramaxillars ceasing under or before the front of the orbits. Lower jaw shorter and received within the upper. Lips large; the upper loose and continuous; the lower lobular or slightly pendant on each side.

Teeth in the jaws, vomer and palatine bones conical, mostly uniserial on the sides of the jaws and the palatines.

Branchial apertures rather large, almost vertical, in front of the bases of the pectoral fins and further, extending slightly above and below.

Branchiostegal rays five or six.

Dorsal fin commencing behind the bases of the pectorals, and, like the anal, continuous with the caudal uninterruptedly.

Pectoral fins moderate, obliquely rounded behind, inserted moderately high.

Ventral fins minute, with three or four rays.

Synopsis.

A. Pectoral fins with 18—22 rays.

I. Body wholly scaly.

α. Vertical fins scaly. Brownish yellow, with six slightly oblique, blackish bands as wide as the intervals behind the head, tending downwards and forwards. Head dark. D. 116—117. A. 91—95. P. 20. V. 4 .... L. vahlii.

β. Vertical fins naked. Brownish yellow, with anastomosing lines forming five reticulated bands behind the head. Head reticulated with similar lines. D. 93—95. A. 75. P. 20. V. 4 .... L. reticulatus.

II. Body only partly scaly.

1. Body scaly in front, naked behind; fins naked. Yellowish, with eight brown bands, broader than their interspaces, behind the head. Head banded above, and with two round yellow spots on the crown. D. 80. A. 65. P. 19. V. 3 .... L. perspicillum.

2. Body naked in front, scaly behind; fins naked. Color uniform. D. 91. A. 71. P. 21—22. V. (3 ?) L. seminudus.

3. Body naked anteriorly; scaly on the posterior part of the dorsal fin, not or scarcely on the anal. Brown, with transverse yellow bands across the back, but small and indistinct. D. 87. A. 68. P. 19. V. 3 .... L. nebulosus.

III. Body and fins wholly naked. Brownish black, with five narrow white bars across the back behind the head; the posterior largest, and spreading downwards. Abdomen and head below white. D. 90. A. 70. P. 18. V. 3 .... L. mucosus.

B. Pectoral fins "having fifteen rays," with the length "exceeding twice its breadth," without any scales. Yellowish, "with eleven large saddle-shape markings across the back, the middle of these markings being much lighter than their edges; the whole back and the sides marbled .... L. polaris.

LYCODES VAHLII Reinhardt.

Synonymy.

Lycodes Vahlii *Reinhardt*, Kongelige Danske Videnskabernes Selskabs Naturvidenskabelige og Mathematiske Afhandlingar, deel vii. p. 153, tab. 5, 1838. *Gill*, Catalogue of the Fishes of the Eastern Coast, &c., p. 46, 1860. *Günther*, Catalogue of the Fishes in the British Museum, vol. iv. p. 319, 1862.

Hab.—Greenland.

LYCODES RETICULATUS Reinhardt.

Synonymy.

Lycodes reticulatus *Reinhardt*, op. cit., deel vii. p. 167, tab. vi. *Gill*, op. cit., p. 46. *Günther*, op. cit., vol. iv. p. 320.

Hab.—Greenland.

LYCODES PERSPICILLUM Kroyer.

Synonymy.

Lycodes perspicillum *Kroyer*, Oversigt over det Kongelige Danske Videnskabernes Selskabs, &c., 1844, p. 140. *Kroyer*, Voyage en Scandinavie, en Laponie, au Spitzberg et aux Faröe, &c., sur la corvette

"La Recherché," *Poissons*, tab. vii. *Gill*, op. cit., p. 46. *Günther*, op. cit., vol. iv. p. 320.

Hab.—Greenland.

LYCODES SEMINUDUS Reinhardt.

Synonymy.

Lycodes seminudus *Reinhardt*, op. cit., deel vii. p. 223. *Gill*, Cat,, p. 46. *Günther*, op. cit., vol. iv. p. 320.

Hab.—Greenland.

LYCODES NEBULOSUS Kroyer.

Synonymy.

Lycodes nebulosus *Kroyer*, Oversigt over det Kongelige Danske Videnskabernes Selskabs, &c., 1844, p. 140. *Gill*, Cat., p. 46. *Kroyer*, Naturhistorisk Tidsskrift stiftet af Henrik Kroyer, udgivet af Prof. J. C. Schiodte, naepes iii. hafte ii. p. 293, 1862.

Hab.—Greenland.

LYCODES MUCOSUS Richardson.

Synonomy.

Lycodes mucosus *Richardson*, Last of the Arctic Voyages, p. 362, pl. 26, 1855. *Gill*, Cat., p. 46. *Günther*, op. cit., vol. iv. p. 320.

Hab.—Northumberland Sound.

LYCODES POLARIS Richardson.

Synonomy.

Blennius polaris *Sabine*, in Parry's Journal of a Voyage for the Discovery of a Northwest Passage, &c., performed in 1819-20, &c., Supplement to Appendix, p. ccxii.

Zoarces polaris *Richardson*, Fauna Boreali-Americana, *Fishes*, p. 94.

Lycodes polaris *Richardson*, Last of the Arctic Voyages, p. 362. *Gill*, Cat., p. 46. *Günther*, op. cit., vol. iv. p. 321.

Subfamily *GYMNELINÆ* Gill.

Genus GYMNELIS Reinhardt.

Synonomy.

Gymnelis *Reinhardt*, Kongelige Danske Videnskabernes Selskabs Nat. og Math. Afhandlingar, deel vii. p. 130, 1838. Seq. Richardson, Kaup, Gill, Kroyer, Günther.

Cepolophis *Kaup*, Wiegmann's Archiv. für Naturgeschichte, 1856, band i. p. 96, 1856.

Gymnelis *Günther*, Catalogue of the Fishes in the British Museum, vol. iv. p. 323, 1862.

Ophidium sp. *Fabricius.*

Body naked, elongated and slender, compressed, especially behind the abdomen, and with the anus situated little behind the anterior third of the length, and with a moderate papilla.

Head oblong, rather small (one-sixth or seventh of total length), and declivous in front to the snout. Eyes moderate, entirely in the anterior half of the head. Nostrils single.

Mouth with the cleft moderately oblique and quite deep, the supramaxillars generally extending wholly under or behind the eyes. Jaws equal in front; lower oblong and rounded in front.

Teeth small and acute, pluriserial at the front of jaws, uniserial on the sides, as well as on the vomer and palatine bones.

Branchial apertures rather small, scarcely extending in front of the upper portion of the bases of the pectoral fins.

Branchiostegal rays six.

Dorsal and anal fins confluent with the caudal, and uninterrupted.

Pectoral fins fan-shaped, rather small, and inserted rather low.

Ventral fins obsolete.

The *Ophidium imberbe* of Linn., as understood by recent authors, and the *O. stigma* of Lay and Bennett, do not belong to this genus. The latter is distinguished by its scaly body.

GYMNELIS VIRIDIS Reinhardt.

Synonomy.

Ophidium viride *Fabricus*, Fauna Groenlandica, p. 141. *Bloch*, *Schneid.*, p. 486. *Ross*, *Reinhardt.*

Ophidium unernak *Lacépède*, Histoire Naturelle des Poissons, tome ii. p. 286.

Gymnelis viridis *Reinhardt*, Kongelige Danske Videnskabernes Selskabs Nat. og Mat. Afhandlingar, deel vii. *Kroyer*, Voyage en Scandinavie, en Laponie, au Spitzberg et aux Faröe, &c., sur la corvette "La Recherché," *Poissons*, tab. 15. *Richardson*, Last of the Arctic Voyages, p. 371, pl. 30. *Kroyer*, Naturhistorisk Tidsskrift Stiftet af Henrik Kroyer, udgivet af Prof. J. C. Schiodte, naepes iii. hafte 2, 1862. *Günther*, Catalogue of the Fishes in the British Museum, vol. iv. p. 323.

Cepolophis viridis *Kaup*, Archiv für Naturgeschichte.

Hab.—Greenland.

Descriptions of the GOBIOID genera of the Western coast of Temperate North America.

BY THEODORE GILL.

In the present article, detailed descriptions are submitted of three genera represented on the coasts of the Pacific United States. Although more than usually detailed, it is believed that no characters except such as are strictly generic are included; the brief references made to other genera will assist in obtaining an idea of the character of variation in the family. After having seen as numerous species as any of my predecessors, I am convinced that many natural genera are included under the name *Gobius*. A number of these have already been named, but others yet remain without designation.

The subfamily Gobiinæ is the only one so far known to be represented in the Californian and Oregon waters. Further south, the subfamilies Eleotrinæ, Sicydiinæ,[*] and Amblyopinæ occur.

Genus CORYPHOPTERUS Gill.

Synonymy.

Gobius sp. auct.

Body robust, considerably compressed, especially towards the back and caudal fin, with the anus considerably in advance of the middle; caudal peduncle oblong, high, and not contracted.

Scales regularly imbricated, large, more or less hexagonal, with the posterior margin pectinated, the nucleus at or near the posterior angle, and with striæ radiating thence towards the anterior margin; the scales cease near the nape.

Head scaleless, oblong, above nearly square and transversely arched behind the eyes; the sides compressed downwards; cheek scarcely tumid; snout oblique; eyes rather large, longitudinally elliptical, oblique, very closely approximated, and situated chiefly or wholly in the anterior half of the head;

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[*] The Sicydiinæ are represented by four genera, *Sicydium*, (old world), *Sicyopterus* (new world), *Sicyopus* (without labial teeth, &c., and embracing *Sicydium zosterophorum* Blkr., and *S. balinense* Blkr.), and *Sicyogoster* Gill, (nec Barneville = *Gobiesox.*